TE VI
TE (EXTC) MP & MC-II (Rev)
11/5/2013

Con. 7241–13. **GS–9789**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from the remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks.
(4) Assume **suitable** wherever **necessary**.

1. (a) Design 8086 microprocessor based system using minimum mode with following specifications :— **10**
   (i) 8086 microprocessor working at 8 MHz
   (ii) 32 kB EPROM using 16 K × 8 devices
   (iii) 32 kB SRAM using 16 K × 8 devices.
   Clearly show memory map with address ranges. Draw a neat schematic.
   (b) What is segmented memory and what are its advantages ? Explain logical and physical address in 8086. **5**
   (c) Explain features of PIC 18F microcontroller. **5**

2. (a) Draw and explain interfacing of 8086 with 8255. **10**
   (b) Explain data and program memory organization of PIC 18F microcontroller. **10**

3. (a) Give flowchart and assembly language program for 8086 to substract two 4 digit BCD numbers. **10**
   (b) Explain the following instructions of PIC 18F microcontroller :— **10**
   (i) DAW
   (ii) MOVLB 0 × 06
   (iii) TBLRD*+
   (iv) SLEEP
   (v) RETLW 0 × 15

4. (a) Explain interrupt structure of 8086. **10**
   (b) Explain addressing modes of PIC 18F microcontroller. **10**

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5. (a) Interface 8259A to 8086 and write initialization instructions for 8259A to meet the following specifications :— **10**

   (i) Edge triggered, single

   (ii) Mask interrupts IR1 and IR4

   (iii) Interrupt vector type for IRO is 60H.

   (b) List and explain stack related and processor control instructions of 8086. **10**

6. (a) Explain 8086 maximum mode of operation in detail. **10**

   (b) Write assembly language program for PIC 18F microcontroller to evaluate the following expression. **10**

   $$Y = P \times Q + R \times S$$

   where P, Q, R and S are 8 bit numbers, which are located at memory locations 0×20 to 0×23. Store the result Y in memory locations 0×24 to 0×26.

7. Write short notes on any **four** of the following :— **20**

   (a) PIC 18F pipelining

   (b) PIC 18F STATUS register

   (c) Memory banking in 8086

   (d) Modes of DMA transfer

   (e) PIC 18F microcontroller RESET.

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